

**CALIFORNIA RESOURCES AGENCY  
COASTAL IMPACT ASSISTANCE PROGRAM  
PROJECT PROPOSAL FORM**

**Department:** Department of Boating and Waterways, Coastal Commission, and State Coastal Conservancy  
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**Title of project:** California Master Plan for Comprehensive Coastal Sediment Management  
**Project location:** Entire California Coast  
**Total cost:** \$800,000  
**Funding request:** \$800,000

**MISSION**

*To ensure comprehensive and coordinated management, conservation and enhancement of California's ocean and coastal resources for their intrinsic value and for the benefit of current and future generations.*

**GOALS:** Four goals have been established by the State of California to achieve this mission.

**Goal 1: Stewardship.** To assess, conserve, and manage California's ocean and coastal resources and the ecosystem that supports those resources.

**Goal 2: Economic Sustainability.** To encourage environmentally sound, sustainable, and economically beneficial ocean and coastal resource development activities.

**Goal 3: Research, Education and Technology.** To advance research, educational programs, and technology developments to meet future needs and uses of coastal and ocean resources.

**Goal 4: Jurisdiction and Ownership.** To maximize California's interests in coastal watersheds, State Tidelands, the Territorial Sea, and the Exclusive Economic Zone.

## **Project Summary:**

### **Problem**

National studies indicate our population's strong desire to work, live and recreate along our nation's coastline. California is no different; in fact, 85% of our population lives within 50 miles of the coast. Development that has benefited both the nation and the state has often come at a high price to our coastal environment. Expansive urbanization within our southern coastal watersheds has led to substantial natural resource degradation. Flood control and water supply projects have altered our streams, rivers and wetlands and impeded the natural flow of sediment to the coast. Furthermore, a variety of coastal structures have created imbalances in the distribution of existing sediment along the coast. We rely upon these sediments (sand) to feed our beaches to protect natural resources, provide recreational opportunities, and to create a buffer from the impacts of major storms. Our beaches and coastal wetlands constitute part of California's natural resource and economic infrastructure and require attention if we expect to receive continued benefits.

We are now faced with the task of restoring our degraded watersheds, wetlands and coastal beaches. This requires an analysis of the system of sediment movement within coastal regions. Watersheds no longer provide a sufficient supply of sediment to beaches, wetland functionality is compromised due to too much sedimentation, and beaches often erode due to lack of sediment (sand). California needs a comprehensive statewide master plan that evaluates and prioritizes sediment management needs to maximize the ecological functioning of our coastal watersheds, wetlands, and beaches.

### **Solution**

Future strategies to restore and maintain California's coastal watersheds, wetlands and beaches will require a comprehensive approach to the management and movement of coastal sediments. The applicant agencies have developed this Scope of Work in close consultation with the California Coastal Sediment Management Workgroup (CSMW), an intergovernmental group comprised of the Army Corps of Engineers, the U. S. Geological Survey, and the California Resources Agency and its sub-agencies that have jurisdiction over sediment-related activities in the coastal zone.

## **Scope of Work:**

### **Interagency Coordination and Stakeholder Involvement (\$50,000)**

- Conduct regional / local workshops to publicize the effort and identify the extent of sediment-related problems and opportunities in watersheds along the California coast.
- Develop a description of these problems and opportunities by location, severity, and current activities. Solutions to problems should reflect a multi-system approach to include interrelated coastal sediment management efforts that address the relationship between watersheds, wetlands, and beaches.

### **Data Compilation (\$350,000)**

- Characterize sediment systems in coastal watersheds and along the California coastline by cataloging prior reports and on-going studies for specific coastal sites / regions studied by the Corps, Universities, and Federal, State, regional and local agencies (e.g., the data gathering phase of the Corps' "Coast of California" studies, LIDAR surveys by NOAA, USGS and the Corps). Investigation elements include:
  - sand sources (wetland restoration projects, coastal bluffs, opportunistic sand projects, port and harbor dredging, inland sources, offshore sites)
  - physical sediment characteristics
  - fluvial and estuarine barriers to sediment transport (dams, debris basins)
  - physical barriers (natural and artificial)
  - physical processes (fluvial and littoral)
  - coastal change analyses
  - coastal sediment budgets
- Characterize natural resources affected by sediment (nearshore, beach/dune, estuarine, riparian) by location, density, tolerance to sediment influences, and seasonal and annual persistence.
- Identify the federal, state and local laws, regulations and policies that govern sediment-related activities in California coastal watersheds and littoral cells.
- Identify the federal, state, regional and local governmental agencies and non-governmental organizations that have responsibility for or perform investigations in California coastal watersheds and littoral cells.

### **Development of an adaptive coastal watershed sediment management tool (\$350,000)**

- For federal and state regulatory agencies and local governments to facilitate sediment management in coastal watersheds, including opportunistic sand projects, port and harbor dredging activities, wetland and beach restoration projects, and flood control activities
- Compile results of investigations in a GIS database for analysis of problems and opportunities for solutions.
- Identify priority locations and problem activities from a review of workshop input, prior reports and on-going studies, and evaluate opportunities for solutions based on economic, environmental, and cultural benefits and costs.
- Produce and prioritize regional and site-specific actions and applicable technologies based on results of qualitative evaluation (e.g. regional opportunistic sand programs)

### **Public Education and Information Dissemination (\$50,000)**

- Develop a GIS-based Internet Map Server to ensure that all governmental agencies and public stakeholders will have access to the coastal watershed sediment management tool.
- Institutionalize the network of federal, state, regional and local governmental and non-governmental contacts to ensure the ongoing sharing of project information and identification of problems and opportunities.
- Create a web site and complementary brochures to educate governmental agencies and the public about coastal sediment systems and the need to plan sediment-related activities from a regional, rather than site-specific, perspective. Work with other groups, such as the Los Angeles Contaminated Sediments Task Force, the Southern California Wetlands Recovery Project, the San Diego Association of Governments (SANDAG) and the Surfrider Foundation, to supplement existing communication avenues and vehicles.

CIAP funding will maximize current efforts to produce a California Master Plan for coastal sediment management through direct coordination with the CSMW. Additionally, the U.S. Army Corps of Engineers will also invest \$490,000 over the next three years to assist in the development of the Plan, with in-kind help from other CSMW partners. A statewide plan will, for the first time, identify, describe, evaluate and prioritize sediment management approaches to restore high priority coastal wetlands and beaches. The strategies produced by the Master Plan, along with the strong partnerships forged through the collaborative efforts of the Federal, State, regional and local stakeholders will create the framework required to effectively manage sediments in California's coastal watersheds.

### **Schedule and Timeline:**

November 2001 to February 2002:

Enter into an Interagency Agreement with the CA Resources Agency.  
Develop detailed scope of work with assistance for the CA Coastal Sediment Management Workgroup (CSMW).

March 2002 to May 2002

Advertise and negotiate agreements with study consultants.

May 2002 to December 2003

Initiate and perform study with periodic review by the CSMW.

December 2003 to February 2004

Final study review by the CSMW.

February 2004 to March 2004

Peer Review

March 2004 to August 2004  
Public review and comment.

August 2004 to December 2004  
Public Education and Information Dissemination

**Consistency with Mission and Goals:**

The Master Plan Study fulfills all goals and is consistent with the mission of the Coastal Impact Assistance Program.

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**E-mail:** Sterrett@dbw.ca.gov, Mcoyne@scc.ca.gov, Lewing@coastal.ca.gov  
**Title of project:** Coastal Sediment Compatibility and Impact Study  
**Project location:** Entire California Coast  
**Total cost:** \$400,000  
**Funding request:** \$400,000

**MISSION**

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## **Project Summary and Consistency:**

### **Problem**

Nearshore disposal of dredged materials is an activity undertaken by many public entities in the pursuit of coastal wetlands restoration, beach restoration, port and harbor maintenance, coastal highway maintenance, as well as the clearing of coastal debris basins, flood control channels and reservoirs. The beneficial reuse of these sediments on a beach or in the nearshore environment can improve the beach area, but may cause turbidity from the suspension of the fine-grained portion of the disposal sediment. Turbidity has been identified as a serious concern by the environmental community and coastal regulatory agencies due to its potential for adverse impacts on biological resources. A secondary concern is the fate of the coarse-grained fraction that generally remains close to shore. Regulatory agencies have long maintained a very cautionary approach to permitting aquatic disposal projects and typically impose strict seasonal and grain size restrictions on disposal activities, restrictions that are not always based on the natural fluctuations in turbidity and sedimentation experienced by nearshore resources on an annual basis. Many opportunities to restore habitats and recreational venues by replenishing narrowed beaches have been lost, at great financial and environmental cost, due to these uncertainties in the impacts on nearshore resources from aquatic sediment disposal.

### **Purpose**

The purpose of this study is to provide a scientific basis for regulators to establish technically-sound evaluation criteria for beach restoration using uncontaminated sediment dredged from coastal wetlands, ports and harbors, and cleared from coastal highway landslides, debris basins, flood control channels, and dams. Study efforts will include:

- A. Investigating the fate of both naturally and artificially introduced sediments in the nearshore environment;
- B. Investigating the qualitative and quantitative impacts of naturally occurring turbidity, siltation and sediment migration on nearshore biological resources; and
- C. Evaluating the impacts associated with the disposal of uncontaminated sediment relative to the effects of natural shoreline processes on nearshore biological resources.

### **Scope of Work:**

The applicants will assemble a Technical Advisory Committee comprised of representatives from regulatory agencies and universities to identify and discuss research areas that require further investigation, devise a plan to study the highest-priority areas, and resolve the major issues. The areas of investigation described below may be amended based on the interactions with the Technical Advisory Committee.

- A.
  - Determine the terrestrial sediment load and grain size distribution in a watershed along the California coast.

- Determine the fate of terrestrial sediments from this watershed in the ocean and the effects of waves, currents, dilution and mixing on the ultimate fate of these sediments.

Investigative tools include:

- Side-scan sonar and related technologies
- Sediment surface samples and cores
- Sediment tracer studies

Budget: \$125,000

B.

- Determine the duration and effects of naturally occurring turbidity, siltation and sediment migration on nearshore biota. Investigative tools include:

- Side-scan sonar and related technologies
- optical remote sensing tools
- Diver transects
- Quantify and qualify impacts from naturally occurring sediment. Determine if there is correlation between level of impact and sediment loading, grain size distribution, peak flows, wave and current conditions, or other factors for which data are available.

Budget: \$150,000

C.

- Evaluate the turbidity plumes associated with natural nearshore processes and conditions (e.g. river and harbor discharges, rip currents, seasonal storms) and compare with the turbidity conditions resulting from nearshore sediment disposal projects. Discuss the quantitative and qualitative differences, if any, between natural and introduced sediment and evaluate the significance of these differences.

Investigative tools include:

- Optical remote sensing technologies
- Tripod systems, including video, optical backscatter, laser altimeters, current meters
- Towed camera systems
- Discuss other factors (e.g. water quality) that can affect the health and viability of nearshore biological resources and compare to the impacts from turbidity and siltation.

Budget: \$125,000

The applicants plan to work with existing research efforts under way along the California coast to maximize both funds and capabilities. These include investigations by Moss Landing Research Laboratory, MBARI, Scripps, USGS, the Navy-funded Strataform program at the Eel River, and the Plumes and Blooms research group at UCSB. Recent results from some of these efforts have shown that the behavior of terrestrial sediments along the coastal margin is different in California from sediment behavior observed elsewhere in the world; the applicants plan to take advantage of this new research and emerging technologies that are being developed here to investigate the fate of terrestrial sediments in the nearshore and their impacts on biological resources.



## **Schedule and Timeline:**

November 2001 to January 2002:

Enter into an Interagency Agreement with the CA Resources Agency.

Develop detailed scope of work with Technical Advisory Committee (TAC).

January 2002 to March 2002

Advertise and negotiate agreements with study consultants.

March 2002 to September 2003

Initiate and perform study with periodic review by the TAC.

September 2003 to November 2003

Final study review by the TAC.

November 2003 to January 2004

Peer Review

January 2004 March 2004

Public Comment

## **Consistency with Mission:**

The **Coastal Sediment Impact and Compatibility Study** is consistent with all four goals and the mission of the Coastal Impact Assistance Program. The study will provide scientific information to regulatory agencies for their assessments of the impacts of the beach nourishment activities proposed by other State Resources Agencies and local governments. The results of the study will be used in support of beach restoration and enhancement projects, which are important both for endangered/threatened species habitat enhancement and for recreational opportunities

Goal 1: The study will provide information that regulators need to properly assess impacts from beach nourishment projects, both to allow beach restoration to occur and to protect nearshore ecosystems.

Goal 2: Beach-based tourism contributes over \$27 billion to the state's economy; restoring degraded beaches and conserving existing beaches are vitally important to sustaining coastal tourism. The study will generate information not only to support beach nourishment efforts for recreation and tourism purposes, but also to assist harbors and ports in their attempts to beneficially reuse uncontaminated dredged materials for beach restoration purposes.

Goal 3: The information generated from this study will be used to evaluate current and future projects that focus on increasing the supply of sediment to the coast; it is the first study of its kind for the state.

Goal 4: Results from the study will be used to support state tideland enhancement through optimizing the volume of sediment that enters coastal waters to rebuild and enhance beaches while protecting nearshore habitat areas.

As a result of this study, effective stewardship of state coastal waters, tidelands and watersheds will be increased by balancing beach or nearshore disposal opportunities with habitat protection through science-based regulation and management.